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SEQUENCE LISTING

Lowe, Keith S. Gordon-Kamm, William J. Klein, Theodore M. Rasco-Gaunt, Sonriza Cahoon, Rebecca E. Sun, Xifan Hoester, George J. Gregory, Carolyn A. Nadimpalli, Ramgopal

RECEIVED

APR 2 3 2002

TECH CENTER 1600/2900

<120> Transcriptional Activator Nucleic Acids, Polypeptides, and Methods of Use Thereof

<130> 0943 <140> 09/435,054 <141> 1999-11-08 <150> 60/107,643 <151> 1998-11-09 <160> 26 <170> FastSEQ for Windows Version 3.0 <210> 1 <211> 1173 <212> DNA <213> Zea mays <220> <221> CDS <222> (69)...(902) <400> 1 ccacgcgtcc gccaccacac cacgagcgcg cgataaccct agctagcttc aggtagtagc 60 gagageca atg gac tee age age tte etc ect gee gee geg gag aat 110 Met Asp Ser Ser Phe Leu Pro Ala Ala Gly Ala Glu Asn ggc tcg gcg gcg ggc gcc aac aat ggc ggc gct gct cag cag cat 158 Gly Ser Ala Ala Gly Gly Ala Asn Asn Gly Gly Ala Ala Gln Gln His gcg gcg ccg gcg atc cgc gag cag gac cgg ctg atg ccg atc gcg aac 206 Ala Ala Pro Ala Ile Arg Glu Gln Asp Arg Leu Met Pro Ile Ala Asn gtg atc cgc atc atg cgg cgc gtg ctg ccg gcg cac gcc aag atc tcg 254 Val Ile Arg Ile Met Arg Arg Val Leu Pro Ala His Ala Lys Ile Ser 50

| gac Asp | ga As _l | c gc o Ala 6 | а ьу | g gag s Glu | g acq ı Thi | g ato | cag Glr 70 | ı Glı | g tgo ı Cys | gtg Val | g tcg l Se: | g gag r Gli 7! | ı Tyı | c ato | c agc e Ser | 302 |
|-----------------------|------------------------|--------------------|------------|-----------------------|-------------------|------------------|------------------|----------------|----------------|-------------------|----------------------|----------------------|----------------|----------------|-------------------|-----|
| ttc Phe | : ato : Ile : 80 | : Ini | r Gl | g gag / Gli | g gco u Ala | aac Asr 85 | ιGlι | g cgg ı Arg | f tgd Cys | c caç Glr | g cgg n Arg 90 | g Glu | g cag 1 Glr | g cgo n Aro | c aag J Lys | 350 |
| acc Thr 95 | TTE | e acc | gco Ala | gag Glu | gac Asp 100 | val | ctg Leu | ı tgg ı Trp | gcc Ala | atg Met 105 | : Ser | cgc Arg | cto Lev | . gg | ttc Phe 110 | 398 |
| Asp | ASP |) Tyr | . vai | . GIu 115 | Pro | Leu | Gly | ' Ala | Tyr 120 | Leu | His | Arg | Tyr | 125 | • | 446 |
| Pile | GIU | GIY | 130 | Ala | Arg | Gly | Val | Gly 135 | Leu | Val | Pro | Gly | Ala 140 | Ala | cca Pro | 494 |
| ser | Arg | 145 | GIĀ | Asp | His | His | Pro 150 | His | Ser | Met | Ser | Pro 155 | Ala | Ala | atg Met | 542 |
| ьец | 160 | ser | Arg | GIY | Pro | Val 165 | Ser | Gly | Ala | Ala | Met 170 | Leu | Pro | His | | 590 |
| 175 | HIS | HIS | HIS | Asp | Met 180 | GIn | Met | cac His | Ala | Ala 185 | Met | Tyr | Gly | Gly | Thr 190 | 638 |
| gcc Ala | vai | PIO | Pro | 195 | Ala | GIY | Pro | Pro | His 200 | His | Gly | Gly | Phe | Leu 205 | Met | 686 |
| cca Pro | HIS | Pro | 210 | GIÀ | Ser | Ser | His | Tyr 215 | Leu | Pro | Tyr | Ala | Tyr 220 | Glu | Pro | 734 |
| acg Thr | -y- | 225 | GIY | GIU | nis | АІА | мет 230 | Ala | Ala | Tyr | Tyr | Gly 235 | Gly | Ala | Ala | 782 |
| | 240 | Pro | GIÀ | Asn | GIÀ | G1y 245 | Ser | Gly . | Asp | Gly | Ser 250 | Gly | Ser | Gly | Gly | 830 |
| ggt g Gly (255 | эт | GIÀ | ser | АІА | Ser 260 | His ' | Thr | Pro (| Gln (| Gly 265 | Ser | Gly | Gly : | Leu | Glu 270 | 878 |
| cac o | ccg Pro | cac His | Pro | ttc (Phe 2 275 | gcg Ala ' | tac a Tyr 1 | aag Lys | tagcı | tagt | tc g | tacg | tcgt | t cg | actt | gagc | 932 |

| gta | tcti | tcct | tca | gtct | cta | agu | ctta | ct g ac a | tgat gt.cg | tctg taga | t cc | cggc | cggc | tag | acgtato caactta gccagto aaaaaa | a |
|-----------|------------|-----------------------|----------------------|-------|-----------|------------|------------|--------------|---------------|--------------|------------|------------|-------|-----|---|---|
| | < | | > 2 > 278 > PR | | | | | | | | | | | | | |
| | < | 213: | > Zea | a ma | ys | | | | | | | | | | | |
| Met | | 400 Ser | | ^ Sei | · Dhe | . T.a.: | Dro | - חת | . 77- | | | | | | | |
| _ | | | | 3 | | | | | 10 | | | | | 1 5 | / Ser | |
| | | | 20 | | | | | 25 | | | | | 2 0 | | Ala | |
| | | 55 | | | | | 40 | | | | | 4 5 | Asr | | Ile | |
| Arg | Ile 50 | Met | Arg | Arg | Val | Leu 55 | Pro | Ala | His | Ala | Lys | 45 Ile | Ser | Asp | Asp | |
| Ala 65 | Lys | Glu | Thr | Ile | Gln | Glu | Cys | Val | Ser | Glu | 60 Tyr | Ile | Ser | Phe | Ile | |
| | | | | Asn | 70 Glu | | | | | 75 | | | | | ~ ~ | |
| | | | | 00 | Leu | | | | 90 | | | | | 0.5 | | |
| | | | T00 | | Gly | | | 105 | | | | | 7 7 0 | | | |
| Gly . | | | | | | | 120 | | | | | 136 | | | | |
| | | | | | | 135 | | | | | 1/10 | | | | | |
| Gly (| | | | | 720 | | | | | 155 | | | | | | |
| Ser i | | | | 702 | | | | | 170 | | | | | | | |
| His I | | | TO0 | | | | | 185 | | | | | 100 | Ala | | |
| Pro I | Pro | Pro 195 | Ala | Gly | Pro | Pro | His 200 | His | Gly | Gly | Phe | | Met | Pro | His | |
| Pro G | 3ln 210 | Gly | Ser | Ser | His | Tyr 215 | Leu | Pro | Tyr | Ala | Tyr | 205 Glu | Pro | Thr | Tyr | |
| Gly 6 | | Glu | His | Ala | Met | Ala | Ala | Tyr | Tyr | Gly | 220 Gly | Ala | Ala | Tyr | Ala | |
| Pro G | | | Gly | Gly | 230 | | | | | 225 | | | | | 242 | |
| Gly S | | | | 443 | | | | | フェル | | | | | 0 | | |
| His P | ro 1 | | 200 | | | | | 265 | | - | • | | 270 | | | |
| | <2 | 10> : | 3 | | | | | | | | | | | | | |
| | <2: | 11> : | 20 | | | | | | | | | | | | | |
| | | 12> 1 13> <i>1</i> | | fici | al Se | equer | ıce | | | | | | | | | |
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| | <22 | 23> I | prime | er | | | | | | | | | | | | |

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| | 20 |
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| (222) (44)(481) | |
| <221> misc_feature | |
| <222> (1) (481) | |
| $\langle 223 \rangle$ n = A,T,C or G | |
| ,, =, = 32 3 | |
| <400> 7 | |
| cgagagaaag agttggtgaa gaagaagaag aagttgaaaa gag atg gaa cgt ggt | EE |
| Met Glu Arg Gly | 55 |
| 1 | |
| | |
| ggt ggt ggt ggt agt ggt ggt ttc cat gga tat cag aaa ctc | 103 |

| | Gly 5 | / Gly | gly | Gly | gly | Ser 10 | Gly | Gly | Gly | Phe | His 15 | | у Туі | Glı | n Lys | Leu 20 | |
|---|------------------|----------------------------------|----------------------|------------------------------|-----------------------------|------------------|------------------|-------------------|-------------------|-------------------|------------------|------------------|-------------------|-------------------|--------------------|-------------------|-----|
| | cca Pro | aaa Lys | tca Ser | aac Asn | tcc Ser 25 | Ата | gga Gly | atg Met | atg Met | cto Leu 30 | Ser | gag Glu | g cta 1 Leu | tco Sei | g aat Asn 35 | aac Asn | 151 |
| ٠ | aac Asn | aac Asn | aat Asn | att Ile 40 | Asp | gta Val | aac Asn | tct Ser | aca Thr 45 | tgt Cys | act Thr | gta Val | cga Arg | gag Glu 50 | ı Gln | gat Asp | 199 |
| | cga Arg | tac Tyr | atg Met 55 | cca Pro | att Ile | gct Ala | aat Asn | gtg Val 60 | atc Ile | agg Arg | atc Ile | atg Met | cgt Arg 65 | Lys | gta Val | ctt Leu | 247 |
| | cct Pro | act Thr 70 | cat His | gcc Ala | aag Lys | atc Ile | tct Ser 75 | gac Asp | gat Asp | gcc Ala | aaa Lys | gaa Glu 80 | act Thr | atc Ile | caa Gln | gaa Glu | 295 |
| | tgt Cys 85 | gtc Val | tca Ser | gaa Glu | tac Tyr | atc Ile 90 | agt Ser | ttc Phe | atc Ile | aca Thr | agt Ser 95 | gaa Glu | gcc Ala | aat Asn | gat Asp | cgt Arg 100 | 343 |
| | tgc Cys | caa Gln | cgt Arg | gaa Glu | caa Gln 105 | aga Arg | aag Lys | aca Thr | atc Ile | aca Thr 110 | gct Ala | gaa Glu | gat Asp | gtt Val | tta Leu 115 | tgg Trp | 391 |
| | gcg Ala | atg Met | Ser | aaa Lys 120 | cta Leu | gly aaa | ntt Xaa | Asp | gag Glu 125 | tac Tyr | att Ile | gaa Glu | cct Pro | cta Leu 130 | act Thr | ctt Leu | 439 |
| | tac Tyr | ctt Leu | caa Gln 135 | cgt Arg | tat Tyr | cgt Arg | Glu | ttt Phe 140 | gaa Glu | ggt Gly | gna Xaa | cgt Arg | tgg Trp 145 | tca Ser | | | 481 |
| | | <2 <2 <2 <2 <2 <2 | 20> 21> \\ 22> | 146 PRT Argei VARIX | MONE ANT (14 = Any | 16) | | | | | | | | | | | |
| 1 | Met (| | 00> 8 Arg G | | ∃ly o | Ely G | Sly G | Sly G | Sly S | Ser (| Gly (| Gly (| Gly 1 | Phe 1 | His (| Gly | |
| | 1 Tyr (| | ys I | eu I | 5 | | | sn S | er A | .0 | | | | | 15 | | |
| | Leu S | Ser A | sn A | U | | | sn I | le A | 25 | | | | - | R۸ | | | |
| | Arg G | lu G | 5 | | | 'yr M | 4 let P | 0 | | | | | 15 | | | | |
| | Arg I | | | | | 5 | 5 | | | | 6 | . 0 | | | | | |

| 65 70 75 80 Thr Ile Gln Glu Cys Val Sor Clu True Ile G. Di - 2 | |
|---|-----|
| Thr Ile Gln Glu Cys Val Ser Glu Tyr Ile Ser Phe Ile Thr Ser Glu 85 90 95 | |
| Ala Asn Asp Arg Cys Gln Arg Glu Gln Arg Lys Thr Ile Thr Ala Glu 100 105 110 | |
| Asp Val Leu Trp Ala Met Ser Lys Leu Gly Xaa Asp Glu Tyr Ile Glu 115 120 125 | |
| Pro Leu Thr Leu Tyr Leu Gln Arg Tyr Arg Glu Phe Glu Gly Xaa Arg 130 135 140 Trp Ser 145 | |
| <210> 9 <211> 942 <212> DNA <213> Glycine max | |
| <220> <221> CDS <222> (3)(722) | |
| <pre><400> 9 gc acg agc tct ctt ata atc aca cac aca cct acc tta ata gct atg Thr Ser Ser Leu Ile Ile Thr His Thr Pro Thr Leu Ile Ala Met 1</pre> | 47 |
| gaa act gga ggc ttt cac ggc tac cgc aag ctc ccc aac acc acc gct Glu Thr Gly Gly Phe His Gly Tyr Arg Lys Leu Pro Asn Thr Thr Ala 20 25 30 | 95 |
| ggg ttg aag ctg tca gtg tca gac atg aac atg agg cag cag gta gca Gly Leu Lys Leu Ser Val Ser Asp Met Asn Met Arg Gln Gln Val Ala 35 40 45 | 143 |
| tca tca gat cac agt gca gcc aca gga gag gag aac gaa tgc acg gtg Ser Ser Asp His Ser Ala Ala Thr Gly Glu Glu Asn Glu Cys Thr Val 50 55 60 | 191 |
| agg gag caa gac agg ttc atg cca atc gcc aac gtg att agg atc atg Arg Glu Gln Asp Arg Phe Met Pro Ile Ala Asn Val Ile Arg Ile Met 65 70 75 | 239 |
| cgc aag att ctc cct cca cac gca aaa atc tcg gac gat gca aaa gaa Arg Lys Ile Leu Pro Pro His Ala Lys Ile Ser Asp Asp Ala Lys Glu 80 85 90 95 | 287 |
| aca atc caa gag tgc gtg tct gag tac atc agc ttc atc aca ggt gag Thr Ile Gln Glu Cys Val Ser Glu Tyr Ile Ser Phe Ile Thr Gly Glu 100 105 110 | 335 |
| gcg aac gag cgt tgc cag agg gag cag cgg aag acc ata acc gca gag Ala Asn Glu Arg Cys Gln Arg Glu Gln Arg Lys Thr Ile Thr Ala Glu 115 120 125 | 383 |
| gac gtg ctt tgg gcc atg agc aag ctt gga ttc gac gac tac atc gaa Asp Val Leu Trp Ala Met Ser Lys Leu Gly Phe Asp Asp Tyr Ile Glu | 431 |

130 135 140 ccg ttg acc atg tac ctt cac cgc tac cgt gaa ctt gag

| Pi | | eu Ti 15 | cc a hr M | tg t et 1 | ac Yr | ctt Leu | cac His 150 | Arg | c ta g Ty | r A | gt g rg G | lu | ctt Leu 155 | ga Gl | g g: | gt ly | gac Asp | cgc Arg | 479 |
|-------------------|-----------------------|------------------------------|----------------|--------------|---------------------|-------------------|-------------------|-------------------|--------------|--------------------|--------------|--------------|-------------------|-------------------|----------------|----------|-------------------|-------------------|-------------------|
| ac Th 16 | | et af | g a | gg g | T Y | gaa Glu 165 | cca Pro | cto | gg u Gl | g aa y Ly | s A | gg (rg ' | act Thr | gto Va | g ga | aa Lu | tac Tyr | gcc Ala 175 | 527 |
| ac Th | g ct r Le | t gg u Gl | jt gi .y Va | 1 H | ct a la ' 80 | act Thr | gct Ala | ttt Phe | gt Va | c cc l Pr 18 | O P: | ca (ro I | ccc Pro | tat Tyr | ca Hi | s | cac His 190 | cac His | 575 |
| aa As | t gg n Gl | g ta y Ty | c tt r Ph | ie G | gt q ly <i>l</i> | gct Ala | gcc Ala | atg Met | Pro 200 | o Me | g gg t GI | gg a Ly T | act Thr | tac Tyr | gt Va 20 | 1 2 | agg Arg | gaa Glu | 623 |
| gc Al | g cc a Pr | a cc o Pr 21 | O As | t ad | ca g nr A | gcc Ala | tcc Ser | tcc Ser 215 | cat His | ca Hi | c ca s Hi | ac c .s H | ac Iis | cac His 220 | Hi | c (| cac His | cac His | 671 |
| ca Hi | c car s His 229 | J 71 | t cg a Ar | t gg g G] | ga a .y I | те | tcc Ser 230 | aat Asn | gct | ca Hi | t ga s Gl | u P | ro 35 | aat Asn | gc Ala | t o | ege Arg | tcc Ser | 719 |
| ata Ile 240 | | aaat | tata | taa | tta | tga | c ta | ggai | ttca | g aa | acaa | gac | tt (| gat | gato | gat | t | | 772 |
| | ttaa taag gaaa | ,550 | ~99 | gaay | gga | yu | -ay Lo | atat | . cc | спаа | IT CC | t a: | コヘナ: | 2 t ~+ | ~~ | tt at | tat ctt | tttat taatt | 832 892 942 |
| | < | 210; 211; 212; 213; | 240 PR1 | | e ma | ax | | | | | | | | | | | | | |
| | < | 400> | 10 | | | | | | | | | | | | | | | | |
| Thr 1 | Ser | | | Ile | e Il | e T | hr H | lis | Thr | Pro | Thi | Le | eu I | le | Ala | Me | et G | 3lu | |
| | Gly | Gly | Phe | 5 His | s Gl | ут | yr A | ırg | Lys | 10 Leu | Pro |) As | n T | 'hr | Thr | 1! A | 5 la G | 3ly | |
| | Lys | Leu | | | | | | | <i>!</i> ¬ | | | | | | 20 | | | | |
| | Asp | - | | | | a T | hr G | U | | | | | 1 | _ | | | | | |
| Glu | 50 Gln | | | | | | 5 | | | | | 60 | | | | | | | |
| | Ile | | | | 70 | | | | | | 75 | | | | | | _ | _ | |
| | | | | 85 | | | | | | 00 | - | • | - | | | | | | |
| ire | | Glu | Cys | | | r G | lu T | yr] | le | 90 Ser | Phe | Ile | e Tl | hr (| Slv | 95 G1 | u Δ | la | |
| Asn | Gln | | 700 | Val | Se | | lu G | | 05 | Ser | | | | - | 10 | Gl | u A | | |

| Val Leu Trp Ala Met Ser Lys Leu Gly Phe Asp Asp Tyr Ile Glu Pro 130 135 140 | |
|--|-------------------|
| Leu Thr Met Tyr Leu His Arg Tyr Arg Glu Leu Glu Gly Asp Arg Thr | |
| Ser Met Arg Gly Glu Pro Leu Gly Lys Arg Thr Val Glu Tyr Ala Thr | |
| Leu Gly Val Ala Thr Ala Phe Val Pro Pro Tyr His His Asn | |
| Gly Tyr Phe Gly Ala Ala Met Pro Met Gly Thr Tyr Val Arg Gly Ala | |
| Pro Pro Asn Thr Ala Ser Ser His | |
| 210 215 220 His Ala Arg Gly Ile Ser Asn Ala His Glu Pro Asn Ala Arg Ser Ile | |
| 225 230 235 240 | |
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| <220> <221> CDS | |
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| 1 | |
| gaa cgt gga gga ggt ttc cat ggc tac cac agg ctc ccc atc cac cct | |
| Glu Arg Gly Gly Phe His Gly Tyr His Arg Leu Pro Ile His Pro 5 10 15 | 108 |
| 5 The His Gly Tyr His Arg Leu Pro Ile His Pro | 108 |
| aca tct gga atc caa caa tcg gat atg aag cta aag cta cca gaa atg Thr Ser Gly Ile Gln Gln Ser Asp Met Lys Leu Lys Leu Pro Glu Met | |
| aca tct gga atc caa caa tcg gat atg aag cta aag cta cca gaa atg Thr Ser Gly Ile Gln Gln Ser Asp Met Lys Leu Lys Leu Pro Glu Met 20 25 30 acc aac aat aac tcg tcc act gat gac aat gag tgc acc gtt cga gaa Thr Asn Asn Asn Ser Ser Thr Asp Asp Asn Glu Cys Thr Val Arg Glu | 156 |
| aca tct gga atc caa caa tcg gat atg aag cta aag cta cca gaa atg Thr Ser Gly Ile Gln Gln Ser Asp Met Lys Leu Lys Leu Pro Glu Met 20 25 acc aac aat aac tcg tcc act gat gac aat gag tgc acc gtt cga gaa Thr Asn Asn Asn Ser Ser Thr Asp Asp Asn Glu Cys Thr Val Arg Glu 35 cag gac cgc ttc atg ccg ata gca aac gtg atc cgc atc atg cgg aag Gln Asp Arg Phe Met Pro Ile Ala Asn Val Ile Arg Ile Met Arg Lys | 156 204 |
| aca tct gga atc caa caa tcg gat atg aag cta aag cta cca gaa atg Thr Ser Gly Ile Gln Gln Ser Asp Met Lys Leu Lys Leu Pro Glu Met 20 25 acc aac aat aac tcg tcc act gat gac aat gag tgc acc gtt cga gaa Thr Asn Asn Asn Ser Ser Thr Asp Asp Asn Glu Cys Thr Val Arg Glu 35 cag gac cgc ttc atg ccg ata gca aac gtg atc cgc atc atg cgg aag Gln Asp Arg Phe Met Pro Ile Ala Asn Val Ile Arg Ile Met Arg Lys 50 55 60 65 atc ctt cct cca cat gcc aag atc tct gat gat gcc aaa gag acg atc Ile Leu Pro Pro His Ala Lys Ile Ser Asp Asp Ala Lys Glu Thr Ile | 156 204 252 |

| | 4 | | | | | | | | | | | | | | | | | |
|--|------------------------|---|---|---|---|---------------------------------------|---|---|--|---|---|---|---|---|--|--|--|------------|
| I | ctc Leu | tgg Trp | g g o A | ct a la M | itg Iet | agc Ser | aaa Lys | Leu 120 | (GI) | a tt y Ph | t ga e Ası | t ga p Asj | t ta p Ty: 12! | r Ile | gag Glu | g cco | ttg Leu | 44 |
| 1 | .30 | | - | | | | 135 | -y- | Mr | a GT | ı Pue | ASP 140 |) 5 GT ⁷ | / Gly | Glu | Arg | gga Gly 145 | 49 |
| | | | | J | 1 | .50 | 110 | nea | val | . пуs | 155 | Ser | Thr | Ser | Asp | Pro 160 | | 54 |
| H: | ac is | ttt Phe | 99 G1 | - | tg g et A 55 | rct la | tct Ser | ttt Phe | gtg Val | Pro | н Ата | ttt Phe | cat His | atg Met | ggt Gly 175 | cat His | cat His | 58 |
| a a | ac (| ggc Gly | Pho 18 | | t g ne G | gt (ly 1 | cct Pro | gca Ala | agc Ser 185 | att Ile | ggt Gly | ggt Gly | ttc Phe | ctg Leu 190 | aaa Lys | gac Asp | cca Pro | 636 |
| to Se | g a er S | egt Ser .95 | gct | gg a Gl | y P: | ct t ro s | <i>-</i> | gga Gly 200 | cct Pro | gca Ala | gtc Val | gct Ala | 999 Gly 205 | ttt Phe | gag Glu | ccg Pro | tat Tyr | 684 |
| | | | | | | | | | | | | | | | | | | |
| 21 | 0 | | - | _ | | | | | | | | | | gaga | | | | |
| 21 gg ct | 0 tgg tgg | tgg tca | tg tt | gtg: | gtgg | ıttt aaa | gtt | ittg: | tttt | gtt | cttt | ctt | tttt | tttt | | | gat cttt gttaa | 859 |
| 21 gg ct | 0 tgg tgg | tgg tca tta <2 | tg tt tc | gtgg gagg aagi | gtgg gaac tagt | ıttt aaa | gtt | ittg: | tttt | gtt | | ctt | tttt | tttt | | | | |
| 21 gg ct | 0 tgg tgg | tgg tca tta <2: <2: | tg tt tc 10> | gtgggaggaagg | gtgg gaac tagt | ıttt aaa | gtt | ittg: | tttt | gtt | cttt | ctt | tttt | tttt | | | | 799 859 |
| 21 gg ct | 0 tgg tgg | tgg tca tta <2: <2: | tg tt tc 10> 11> | gtgg gagg aagt 12 214 PRJ | gtgg gaac tagt | ıttt aaa agt | gti cti tti | ittg: | tttt ttgg caa | gtt ttc aaa | cttt | ctt | tttt | tttt | | | | 799 859 |
| gg ct ca | 0 tgg tgc | tgg tca tta <2: <2: <2: <2: | tg tt tc 10> 11> 12> | gtgggaaggaagg | gtgg gaac tagt | gttt gaaa agt | gt: ct: tt: | cttg cacat ccgat | tttt ttgg caa | gtt ttc aaa | cettt aett aaaa | ctt tgg aaa | tttt ctag aaaa | tttt gcat aa | ct t | cttt | ctttt gttaa | 799 859 |
| gg ct ca Met | 0 tgg tgg tgc | tgg tca tta <2: <2: <2: <4(| tg tt tc 10> 11> 12> 13> | gtgggaggaagg | gtgggaactagt | gttt aaa agt a r | gtt ctt ttt | ettg acat ccgat | tttt ttgg ccaa | gtt ttc aaa a | cettt actt aaaa Tyr F | ctt tgg aaa | tttt ctag aaaa | tttt gcat aa | ct t gt a | cttt aacg | ctttt gttaa | 799 859 |
| gg ct ca Met | 0 tgg tgg tgc | tgg tca tta <2: <2: <2: <4(| tg tt tc 10> 11> 12> 13> | gtgg gagg aagd 12 214 PRT Ver 12 Gly | gtgggaactagt | gttt aaa agt a r | gtt ctt ttt | ettg acat ccgat | tttt ttgg ccaa folia | gtt ttc aaa a Gly ' | cettt actt aaaa Tyr F | ctt tgg aaa | tttt ctag aaaa | tttt gcat aa | ct t gt a | cttt aacg | ctttt gttaa | 799 859 |
| gg ct ca Met 1 | o tgg tgg tgc | tgggtca tta <2: <2: <2: <4(Lu F | tg tt tc 10> 11> 12> 13> Mrg Ser | gtgggaggaaagri 12 214 PRT Ver 12 Gly | gtgggaactagt | gttt gaaa agt a r | gtt ctt ttt | cttg cacat ccgat dilif he H | ttttttttttttttggccaa | gtt ttc aaa a Gly | Cettt actt aaaa Tyr I 10 Met I | ctt tgg aaa His A | tttt ctag aaaa Arg] | tttt gcat aa Leu I | ct to gt as Pro I 1 eu P | cttt aacg le 1 5 | ctttt gttaa His | 799 859 |
| gg ct ca Met 1 Pro | tgggtggc | tgg tca tta <2: <2: <2: <4: u I | tg tt tc 10> 11> 11> Nrg Ser | gtgg gagg aagu 12 214 PRT Ver 12 Gly Gly 20 Asn | gtgggaactagt | gttttgaaa agt a r g Gl | gtt ctt ttt mesp ly P ln G | cttg cacat ccgat dilif he H ln S er T 4 | tttttttttggccaa | gtt ttc aaa a Gly : | CCTTT CACTT | ctt tgg aaa His A | tttt ctag aaaa Arg] Leu I | tttt gcat aa Leu I Lys I 3 Cys T | ot to gt as Pro I 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | ctttaacg | ctttt gttaa Iis Slu .rg | 799 859 |
| gg ct ca Met 1 Pro | tgggtggc | tgg tca tta <2: <2: <2: <4(lu I | tg tt tc 10> 11> 11> 13> Arg Ser ssp | gtgg gagg aagi 12 214 PRI Ver 12 Gly Gly 20 Asn | gtgggaactagt Gli Solitagt Ass | a r Gl Se Me | gtt cttt ttt mesp nesp n G r S et P: | cittgrate control of the Holm Ser T. | ttttttttttggccaa | gtt ttc aaa | Tyr I 10 Met I Asp A | ctt tgg aaa His i Lys I | tttt ctag aaaa Arg 1 Leu I | Leu F Lys I Cys T Cys T | ot to gt a Pro I 1 leu P 0 hr V | cttt aacg le F 5 ro G | ctttt gttaa His Hu rg | 799 859 |
| gg ct ca Met 1 Pro Met Glu Lys 65 | tgggtgc | tgggtca tta <2 <2: <2: <40 lu 1 3 n A | tg tt tc 10> 11> 12> 13> Arg Ser asn 5 ssp | gtgg gagg aagg 12 214 PRT Ver 12 Gly Gly 20 Asn Arg | gtgggaactagt Gli Goni Ass Phe | a r Gl | gtt ctt ttt mesp ly P ln G er S et P: 5! | cittg cacat cilif he H ln S er T 4 ro I | ttttttttttggccaa | a gtt de se | Tyr I 10 Met I Asp A Ser A | tgg aaa His A Lys I Asn O | tttt ctag aaaa Arg] Leu I Glu (4 Gle A Gle A Gle A | Leu I Lys I 3 Cys T 15 Lrg I | ot to gt as Pro I leu P O hr V le M | ctttaacg | ctttt gttaa Iis Ilu rg rg hr | 799 859 |
| gg ct ca Met 1 Pro Met Glu Lys 65 Ile | tgggttgc | tgggtca tta <2 <2: <2: <4(lu <i>F</i> 3 n A e L | tg tt tc 10> 11> 12> 13> Arg Ser ssp eu | gtgggaggaagg 12 214 PRT Ver 12 Gly Gly Asn Arg | gtgggaactagt ggaactagt coni Gl: 5 Il. Ass Phe Pro Val | a r Gl See Me | gtt ctt ttt mesp ly P ln G er S s Al | cittg cacat cilif he H ln S er T 4 ro I | ccaa folia f | a Gly ! Asp ! | Tyr I 10 Met I Asp A Ser A | tis A Lys I Asn (Val I Lsp A She V | tttt ctag aaaa Arg I Leu I Glu (4 Ile A Ile A Isp A | Leu I Lys I Sys T Lys I | ot to gt as Pro I leu P 0 hr V le M ys G: | cttt aacg le F ro G al A et A | ctttt gttaa His Hu rg rg hr O | 799 859 |
| gg ct ca Met 1 Pro Met Glu Lys 65 Ile Asn | tgggttgc | tgggtca tta <22 <22 <22 <40 Lu F A n A e L | tg tt tc 10> 11> 13> Arg Ser ssp eu lu | gtgggaggaagg 12 214 PRT Ver 12 Gly Gly 20 Asn Arg Pro Cys | gtgggaactagt ggaactagt Foni Silla Asi Phe Val 85 Gln | a i aaaa agt aa i See Mee Mee Mee Arg | gtt cttt ttt mesp ly P ln G er S et P: s Al | cittgrade control of the Holm Ser T. 4 to 15 to | ttttttttttggccaa | a Sly ! Asp ! Asp ! Asp ! Le s le s rg L | Tyr H 10 Met I Asp F Asn V Ser A 10 10 11 11 11 11 11 11 11 11 11 11 11 | tigg aaa His A Lys I Asn (Val I 6 Sp A 5 he V | tttt ctag aaaa Arg 1 Leu I Glu (4 Ile A SO A Sp A | Leu I Lys I Sys T Lys I | ot to gt as Pro I leeu P 0 hr V le M ys G: 1y G: la G: | ctttaacg | ctttt gttaa His lu rg rg hr 0 la | 799 859 |

,

| 130 Gly Ser Ilo Ann Gl | 135 | | 140 | |
|--|---------------------------------|--------------------------------------|---|-----|
| | | | Ser Thr Ser Asp Pro | |
| | | Val Pro Ala | Phe His Met Gly His | |
| His Asn Gly Phe Ph 180 | ne Gly Pro Ala | 170 Ser Ile Gly | 175 Gly Phe Leu Lys Asp | |
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| Ala Arg Gly Lys Thr 1 5 | . val Thr Ser | Glu Asp Ile V 10 | al Trp Ala Met Ser 15 | |
| cgc ctc ggc ttc gac Arg Leu Gly Phe Asp 20 | wah ili Adi | 25 | ly Ala Phe Leu Gln 30 | 96 |
| cgc atg cgc gac gac Arg Met Arg Asp Asp 35 | 40 | GIY GIY GIU G. | Iu Arg Gly Gly Pro 45 | 144 |
| gca ggg cgt ggt ggc Ala Gly Arg Gly Gly 50 | 55 | siy ser ser se | er Leu Pro Leu His 50 | 192 |
| tgc ccg cag cag atg Cys Pro Gln Gln Met 65 | 70 | ro Ala Va 75 | al Cys Arg Arg Pro 80 | 240 |
| cac cag agc gtg tcg His Gln Ser Val Ser 85 | TTO ATA ATA G | 90 | 1 Arg Pro Val Pro 95 | 288 |
| cgc ccg atg cca gcc Arg Pro Met Pro Ala 100 | ary Gry Tyr A | gc atg cag gg rg Met Gln Gl 05 | c gga gac cac cgc y Gly Asp His Arg 110 | 336 |
| agc gtg ggc ggc gtg g Ser Val Gly Gly Val 1 | 120 | er Tyr Gly Gly | y Ala Leu Val Gln 125 | 384 |
| gcc ggt gga acc caa o Ala Gly Gly Thr Gln B | cac gtt gtt gg His Val Val G | ga ttc cac gad ly Phe His Asp | c gac gag gca agc o Asp Glu Ala Ser | 432 |

130 135 140

| tct tcg agt gaa aat ccg ccg ccg gag ggg cgt gcc gct ggc tcg aac Ser Ser Ser Glu Asn Pro Pro Pro Glu Gly Arg Ala Ala Gly Ser Asn 145 150 155 160 | 480 |
|---|--------|
| tagcctaget teteagttee cegtgtacaa taagaggge ggtegeggeg cegegegge ceettggtt gggeeggeg ctatgetgea gtttgtttg taaactaacg agcetagge agetggtgea egegegeae etegeeggae gtegeegteg tegteggeat ggaettaat eteaagtttg tagccaacge actgtteggt gegtteeat atttaattta ecatgttget etegaaaaaa aaaaaaaaaa aaa <210> 14 | jt 600 |
| | |
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| Arg Leu Gly Phe Asp Asp Tyr Val Ala Pro Leu Gly Ala Phe Leu Gln | |
| 20 25 30 Arg Met Arg Asp Asp Ser Asp His Gly Gly Glu Glu Arg Gly Gly Pro | |
| 40 AE | |
| Ala Gly Arg Gly Gly Ser Arg Arg Gly Ser Ser Ser Leu Pro Leu His | |
| Cys Pro Gln Gln Met His His Leu His Pro Ala Val Cys Arg Arg Dro | |
| 70 75 | |
| His Gln Ser Val Ser Pro Ala Ala Gly Tyr Ala Val Arg Pro Val Pro 85 90 95 | |
| Arg Pro Met Pro Ala Arg Gly Tyr Arg Met Gln Gly Gly Asp His Arg | |
| Ser Val Gly Gly Val Ala Pro Cys Ser Tyr Gly Gly Ala Leu Val Gln | |
| 120 | |
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| Ser Ser Ser Glu Asn Pro Pro Pro Glu Gly Arg Ala Ala Gly Ser Asn | |
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| <213> Zea mays | |
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| <221> misc_feature <222> (1)(622) <223> n = A,T,C or G | |
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| | |

| CC | 2 00 | ·~ ~ | | ~ | | | | | | | | | | | | | | | |
|------------------------|-------------------|--|---------------------------|------------------|----------------------|-------------------|-------------------|----------------------|-------------------|-------------------|--------------------|--------------|--------------|------------------|-------------------|-------------------|--------------------|----------|-----|
| | | | | | 20 |) | 2 61 | a gc u Al | a va | .1 A.1 | .a Ti | ır A | .sp | Glu | ı Al | a Pr 3 | o Pr O | 0 | 95 |
| CC: Pro | a at o Me | g g t G | gc a | aac Asn 35 | MOI | aa Ası | c aa n As | c ac | g ga r Gl 4 | u Se | g go r Al | g a .a T | cg (| gcg Ala | ac Th: | r Me | g gt t Va | c l | 143 |
| cgo Aro | g ga g Gl | <u>ـ</u> ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ | ag g ln <i>F</i> 50 | gac Asp | cgg Arg | cto Lev | g ate | g cco t Pro 55 | o va. | g gc l Al | c aa a As | ic gi | tg : | tcc Ser 60 | cgo | c ate | c ato | : | 191 |
| cgo Arg | caa g Gli 6 | | tg c | tg eu | cct Pro | ccg Pro | tao Ty: | gco Ala | aag Lys | g at | c tc e Se | r As | ac g sp # | gac Asp | gco Ala | car Xaa | ı gaa a Glu | ı I | 239 |
| gtn Xaa 80 | | c ca e Gl | a g In G | aa lu | ttg Leu | ctn Xaa 85 | PHE | gga Gly | att Ile | tca Sei | a tc r Se: 9 | r Le | t n u X | icg (aa | tcc Ser | tgg Trp | r cga Arg 95 | • | 287 |
| ggc | gaa Glu | ı ac | g a ır L | y O | cgg Arg 100 | tgc Cys | cac His | acc Thr | gag Glu | cgo Arg 105 | J Arg | c aa g Ly | ga sT | .cc hr | gtc Val | acc Thr | Ser | | 335 |
| gaa Glu | gac Asp | at Il | _ ,, | tg al 15 | tgg Trp | gcc Ala | atg Met | agc Ser | cgc Arg 120 | cto | ggo Gly | tt Ph | cg eA | sp | gac Asp 125 | tac Tyr | gtc Val | | 383 |
| gcg Ala | ccc Pro | ct Le 13 | - 03 | gc (| gcc Ala | ttc Phe | ctc Leu | cag Gln 135 | cgc Arg | atg Met | cgc Arg | ga Bag | o Xa | ac aa : | agc Ser | gaa Glu | cac His | | 431 |
| gl ^à aaa | ggt Gly 145 | gaa Gli | a aa u As | sn A | gcg Ala | gcg Ala | gcc Ala 150 | tgc Cys | ang Xaa | Gly aaa | tng Xaa | tgg Trp | Xa | en o | cgc Arg | cgc Arg | gly aaa | | 479 |
| tcg Ser 160 | tct Ser | nct Xaa | t tg a Tr | g d | A | tcc Ser 165 | ctt Leu | gcc Ala | gca Ala | ana Xaa | gat Asp 170 | gac Asp | aa As | ic t in I | tg Leu | cac His | caa Gln 175 | | 527 |
| acg Thr | tct Ser | gcc Ala | Gl Gl | y A | itc g aa (.80 | gga Gly | cca Pro | aaa Lys | ctn Xaa | ttc Phe 185 | cct Pro | gtt Val | gc Al | a g a G | lу | ata Ile 190 | ccc Pro | | 575 |
| gtc Val | cng Xaa | ggc Gly | Cn Xaa 19 | 4 5 | cc o | ccc (Pro 1 | ccn Xaa | Asn . | cca Pro 200 | acc Thr | att Ile | tgg Trp | tt Ph | e P | ro : | ctt Leu | gc | | 622 |
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<213> Zea mays

<220>

| | | | > VAR | | | | | | | | | | | | | |
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| | • | <223> | Xaa | . = A | ny A | Amino | Aci | .d | | | | | | | | |
| Mot | | 400> | | ~-3 | _ | | | | | | | | | | | |
| _ | | | | J | | | | | חר | | | | | | Pro | |
| | | | ~ ~ | | | | | 25 | | | Glu | | 2.0 | Pro | | |
| | | | | | | | 40 | Ser | | | Ala | 4 - | | | | |
| Glu | Gln 50 | Asp | Arg | Leu | Met | Pro 55 | Val | Ala | Asn | Val | Ser | 45 Arg | Ile | Met | Arg | |
| Gln 65 | Val | Leu | Pro | Pro | Tyr 70 | Ala | Lys | Ile | Ser | Asp | 60 Asp | Ala | Xaa | Glu | Xaa | |
| Ile | Gln | Glu | Leu | Xaa 85 | Phe | Gly | Ile | Ser | Ser | 75 Leu | Xaa | Ser | Trp | Arg | 80 Gly | |
| Glu | Thr | Lys | Arg 100 | Cys | His | Thr | Glu | Arg | 90 Arg | Lys | Thr | Val | Thr | 95 Ser | Glu | |
| | | | | | | | Arg | | | | Asp | | | | | |
| | Leu | | | | | Gln | | | | | Xaa | | | | | |
| | | | | | | 133 | | | | | 140 Xaa | | | | | |
| | | | | | 100 | | | | | 7 6 6 | Asn | | | | | |
| | | | | TO 2 | | | | | 770 | | Ala | | | | | |
| | | | | | | | | 185 | | | Phe : | | | Pro | vaı | |
| | | 195 | | | | | 200 | | 110 | p | | 205 | Leu | | | |
| | | 10> 11> | | | | | | | | | | | | | | |
| | <2 | 12> 1 | | ine : | 72 | | | | | | | | | | | |
| | | 20> | J1 7 C. | 1116 1 | пах | | | | | | | | | | | |
| | <2 | 21> (| | (, , | | | | | | | | | | | | |
| | | | (3) | . (11 | 121) | | | | | | | | | | | |
| gc ac | cg ag | 3g ga 30 > 1 | a ac | t gg | ja go | gc tt | t ca | it gg | jc ta | ic co | rc aa | ıa ct | a ac | c aa | .c | 47 |
|] | 1 | .y U1 | .u 111 | 5 | .y G1 | y Pr | іе ні | .s Gl | .у Ту 1 | r Ar .0 | g Ly | s Le | u Pr | o As | n 5 | 4.7 |
| aca a | acc t Thr S | ct g Ger G | -y - | tg a eu L 20 | ag c ys L | tg t eu S | ca g er V | ar s | ca g er A 25 | ac a sp M | tg a Met A | ac a sn M | et A | ac a sn M 30 | tg et | 95 |
| agg c | | U | 35 | al A | Ia S | er S | er A | sp G 40 | ln A | sn C | ys S | er A | sn H 45 | is S | er | 143 |
| gca g Ala A | ca g la G | ga ga ly G | ag ga lu G | ag aa lu Aa | ac g | aa to lu C | gc a ys Tl | cg g hr Va | tg ag | gg g rg G | ag ca lu Gl | aa ga ln As | ac ag | gg ti ra Pl | tc ne | 191 |

| 50 | 55 | 5 | 60 | |
|--|---|-----------------------------------|---|----------------------|
| atg cca atc gct Met Pro Ile Ala 65 | aac gtg ata cgg Asn Val Ile Arg 70 | r atc atg cgc r Ile Met Arg | aag att ctc cct Lys Ile Leu Pro 75 | cca 239 Pro |
| cac gca aaa atc His Ala Lys Ile 80 | tcc gat gat gca Ser Asp Asp Ala 85 | aag gag aca Lys Glu Thr 90 | atc caa gag tgc Ile Gln Glu Cys | gtg 287 Val 95 |
| out off the | agc ttc atc acc Ser Phe Ile Thr 100 | ggg gag gcc Gly Glu Ala 105 | aac gag cgt tgc Asn Glu Arg Cys 110 | cag 335 Gln |
| agg gag cag cgc a Arg Glu Gln Arg 1 115 | aag acc ata acc Lys Thr Ile Thr | gca gag gac Ala Glu Asp 120 | gtg ctt tgg gca Val Leu Trp Ala 125 | atg 383 Met |
| agt aag ctt gga t Ser Lys Leu Gly I 130 | Phe Asp Asp Tyr 135 | Ile Glu Pro | Leu Thr Met Tyr 140 | Leu |
| cac cgc tac cgt g His Arg Tyr Arg G 145 | gag ctg gag ggt Elu Leu Glu Gly 150 | gac cgc acc Asp Arg Thr | tct atg agg ggt Ser Met Arg Gly 155 | gaa 479 Glu |
| ccg ctc ggg aag a Pro Leu Gly Lys A 160 | 165 | Tyr Ala Thr 170 | Leu Ala Thr Ala | Phe 175 |
| | ne his his his . 80 | Asn Gly Tyr : | Phe Gly Ala Ala 1 190 | Met |
| ccc atg ggg act t Pro Met Gly Thr T 195 | yr vai Arg Giu : | Thr Pro Pro 1 200 | Asn Ala Ala Ser S 205 | Ger |
| cat cac cat cat go His His His His G 210 | ly lie Ser Asn A 215 | Ala His Glu I | Pro Asn Ala Arg S 220 | Ger |
| 225 | Arg val Leu E | Phe Ser Arg A 230 | Arg Thr Arg Leu L 235 | eu |
| gga ctt gat tag ct Gly Leu Asp * Le 24 | o Ash Ser Gin | * Leu Val L 245 | Leu Glu Tyr Cys C 2 | ys 50 |
| tga gga tgg tta at * Gly Trp Leu Il | t tta taa tta a e Leu * Leu A 255 | rg Ala Gly A | aat tgg gga gtt a ssn Trp Gly Val S 660 | gt 815 er |

ata tat tcc taa tcc taa tta tgt gca tct tta att tat gga ata act Ile Tyr Ser * Ser * Leu Cys Ala Ser Leu Ile Tyr Gly Ile Thr

| 265 | | | | | | | 270 | | | | | 275 | | | | | |
|-------------------|-------------------|------------|------------|-------------------|-------------------|-------------------|------------|------------|-------------------|------------|-------------------|------------|------------|-------------------|-------------------|---|------|
| ttg Leu | ttt Phe 280 | ttt Phe | gtt Val | tta Leu | act Thr | tct Ser 285 | gat Asp | aat Asn | ttg Leu | gat Asp | ttt Phe 290 | ctg Leu | atg Met | ttt Phe | aat Asn | | 911 |
| gtg Val 295 | gtt Val | ttg Leu | tct Ser | atc Ile | cct Pro 300 | tat Tyr | taa * | cag Gln | tgc Cys | caa Gln | gct Ala 305 | taa * | ggt Gly | ttt Phe | agc Ser | | 959 |
| cat His | gct Ala 310 | cca Pro | aaa Lys | tgg Trp | aat Asn | act Thr 315 | tgt Cys | act Thr | gtt Val | atg Met | ttg Leu 320 | ttc Phe | tgg Trp | tag * | tga * | | 1007 |
| tgg Trp | tga * | tga * | aac Asn | ctg Leu 325 | caa Gln | gtt Val | atg Met | ttt Phe | atg Met 330 | tat Tyr | aaa Lys | gcc Ala | act Thr | att Ile 335 | gat Asp | : | 1055 |
| caa Gln | aat Asn | tag * | aga Arg | aat Asn 340 | tat Tyr | cat His | tta Leu | ata Ile | agt Ser 345 | atc Ile | ctc Leu | cca Pro | tgt Cys | taa * | ttt Phe 350 | - | 1103 |
| | aaa Lys | | | | | | | | | | | | | | |] | 1121 |

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| Met | Gly | Thr | 180 Tyr | | l Arc | r Glı | ı Thi | 189 | | λer | ר ה | . או | 19 | 0 | c His | |
|---|---|--|---|---|---|--|--|--|---------------------------------------|--|---|--|--|---|--|------------------|
| | | 195 |) | | | | 200 |) | | | | 205 | 5 | | Tle | |
| | 210 | | | | | 215 | 5 | | | | 220 |) | | | | |
| 225 | | | | | 230 | r . | | | | 235 | 5 | | | | Leu 240 | |
| | | | | 245 | 5 | | | | 250 | 1 | | | | 255 | Leu | |
| | | | 260 | | | | | 265 | 5 | | | | 270 | Ala | Ser | |
| Leu | Ile | Tyr 275 | Gly | Ile | Thr | Leu | Phe 280 | Phe | · Val | Leu | Thr | Ser 285 | Asp | Asr | Leu | |
| Asp | Phe 290 | Leu | Met | Ph∈ | e Asn | Val 295 | Val | | Ser | Ile | | Tyr | Glr | Cys | Gln | |
| Ala 305 | | Phe | Ser | His | Ala | | | Trp | Asn | | | Thr | Val | Met | Leu | |
| | Trp | Trp | Asn | Leu | 310 Gln | Val | Met | Phe | Met | 315 Tyr | Lys | Ala | Thr | · Ile | 320 Asp | |
| Gln | Asn | Arg | Asn | 325 Tyr | His | Leu | Ile | Ser | 330 Ile | Leu | Pro | Cys | Phe | 335 Lys | Lys | |
| Lys | | | 340 | | | | | 345 | | | | | 350 | | - | |
| | | 355 | | | | | | | | | | | | | | |
| | | 210> 211> | | | | | | | | | | | | | | |
| | | 212> | | | | | | | | | | | | | | |
| | | | | cine | max | | | | | | | | | | | |
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| gcg a | <2 <2 <4 cga Arg | 21> 222> 00> gca Ala | (1). 19 atg Met ata | gcg Ala 5 agg | gga Gly atc | Val atg | Arg | Glu | Gln 10 att | Asp | Gln | Tyr | Met | Pro 15 | Ile | 4 8 96 |
| 1 1 | <2 <2 <4 cga Arg | 21> 222> 00> gca Ala | (1). 19 atg Met ata | gcg Ala 5 agg | gga Gly atc | Val atg | Arg | Glu | Gln 10 att | Asp | Gln | Tyr | Met | Pro 15 | Ile | |
| gcg a | <2 <2 <4 cga Arg aac Asn | 21> 22> 00> gca Ala gtg Val | (1). 19 atg Met ata Ile 20 gac | gcg Ala 5 agg Arg | gga Gly atc Ile | Val atg Met | cgt Arg | cgg Arg 25 | Gln 10 att Ile | Asp ctg Leu | Gln cca Pro | Tyr gcg Ala | Met cac His 30 | Pro 15 gcg Ala | Ile aag Lys | |
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| gcg a Ala atc a | <2 <2 <4 cga Arg aac Asn | 21> 22> 00> gca Ala yal gtg Val | (1). 19 atg Met ata Ile 20 gac Asp | gcg Ala 5 agg Arg gcg Ala | gga Gly atc Ile aag Lys | atg Met gag Glu | cgt Arg acg Thr 40 | cgg Arg 25 atc Ile | Gln 10 att Ile cag Gln | Asp ctg Leu gag Glu | Gln cca Pro tgc Cys | gcg Ala gtg Val 45 | Met cac His 30 tct Ser | Pro 15 gcg Ala gag Glu | Ile aag Lys tac Tyr | 96 |
| gcg a Ala a atc a | <2 <2 <4 cga Arg aac Asn | 21> 22> 00> gca Ala yal gtg Val | (1). 19 atg Met ata Ile 20 gac Asp | gcg Ala 5 agg Arg gcg Ala | gga Gly atc Ile aag Lys | atg Met gag Glu | cgt Arg acg Thr 40 | cgg Arg 25 atc Ile | Gln 10 att Ile cag Gln | Asp ctg Leu gag Glu | Gln cca Pro tgc Cys | gcg Ala gtg Val 45 | Met cac His 30 tct Ser | Pro 15 gcg Ala gag Glu | Ile aag Lys tac Tyr | 96 144 |
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| gcg a Ala atc a Ile s | <22 <4 cga Arg aac Asn tca Ser Ser 30 30 30 30 30 30 30 30 30 30 30 30 30 | 21> 22> 00> gca Ala gtg Val gac Asp 35 ttc | (1). 19 atg Met ata Ile 20 gac Asp atc Ile | gcg Ala 5 agg Arg Gcg Ala acg Thr | gga Gly atc Ile aag Lys gcg Ala | atg Met gag Glu gag Glu 55 | cgt Arg acg Thr 40 gcg Ala | cgg Arg 25 atc Ile aac Asn | Gln 10 att Ile cag Gln gag Glu | ctg Leu gag Glu cgg Arg | cca Pro tgc Cys tgc Cys | gcg Ala gtg Val 45 cag Gln | Cac His 30 tct Ser cgg | Pro 15 gcg Ala gag Glu gag Glu | aag Lys tac Tyr | 96 144 192 |
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| c ga g Gl | g ag u Se | r GI | n GT2 | a gaa / Glu | cct Pro | gct Ala | Se: | r Val | c aga | a cg | c gc g Al | a Se | r Se | t gca r Ala | 336 |
|--|--|---|---|--|--|--|--|--|---|--|--|---|---|--|--|
| g gg: t Gl: | λ TT | e Ası | t aat n Asr | aat Asn | atg Met | Val | . His | c cca Fro | a cct o Pro | tai | r Il | e As | t to n Se | t cat r His | 384 |
| y Phe | GT. | a ato y Met | g ttt : Phe | gat Asp | ttt Phe 135 | gac Asp | e cca Pro | tca Ser | tcg Ser | Glr | ı Gl | g tt y Ph | t ta e Ty | c agg r Arg | 432 |
|) ASE | cat His | t aad s Asr | gct Ala | gct Ala 150 | tct Ser | gga Gly | tct Ser | ggt Gly | r Gly | Phe | gti Val | t gcg l Ala | g cc a Pr | t ttt D Phe 160 | 480 |
| cct Pro | tat Tyr | gct Ala | aac Asn 165 | atc Ile | aaa Lys | cgt Arg | gat Asp | Ala | Leu | tga | ıtcat | gta | agaa | acaaca | ia 533 |
| gtgc | atg | ctgc | tttt | tc a | cttgg | gtta | g tt | atat | tcaa | gca | .caag | Jcac | atgo | aggtg | c 593 |
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| tcaa | aaa | aaaa | aaaa | aa aa | aa | · · · · · · | - ag | caac | ayat | aay | atgg | Itaa | ctgo | cttac | |
| | | | | | | | | | | | | | | | 796 |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | • | • |
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| Arg Asn Ser Ser 50 Lys | Ala Val Asp 35 Phe Thr | Met Ile 20 Asp Ile Val | Arg Ala Thr Thr | Ile Lys Ala Ala 70 | Met Glu Glu 55 Glu | Arg Thr 40 Ala Asp | Arg 25 Ile Asn Val | 10 Ile Gln Glu Leu | Leu Glu Arg Trp | Pro Cys Cys 60 Ala | Ala Val 45 Gln Met | His 30 Ser Arg | 15 Ala Glu Glu Lys | Lys Tyr Gln Leu | |
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| Arg Asn Ser Ser 50 Lys Phe | Ala Val Asp 35 Phe Thr Asp | Met Ile 20 Asp Ile Val Asn Glu | Arg Ala Thr Thr | Ile Lys Ala Ala 70 Ala | Met Glu Glu 55 Glu His | Arg Thr 40 Ala Asp Pro | Arg 25 Ile Asn Val Leu Ser | 10 Ile Gln Glu Leu Ser 90 | Leu Glu Arg Trp 75 Leu | Pro Cys Cys 60 Ala Tyr | Ala Val 45 Gln Met Leu | His 30 Ser Arg Glu His Ser | 15 Ala Glu Glu Lys Arg | Lys Tyr Gln Leu 80 Tyr | |
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| Arg Asn Ser 50 Lys Phe Glu Gly Phe 130 | Ala Val Asp 35 Phe Thr Asp Ser Ile 115 Gly | Met Ile 20 Asp Ile Val Asn Glu 100 Asn Met | Arg Ala Thr Thr Tyr 85 Gly Asn Phe | Lys Ala Ala 70 Ala Glu Asn Asp | Met Glu Glu 55 Glu His Pro Met Phe H | Arg Thr 40 Ala Asp Pro Ala Jal 120 Asp | Arg 25 Ile Asn Val Leu Ser 105 His | 10 Ile Gln Glu Leu Ser 90 Val Pro Ser | Leu Glu Arg Trp 75 Leu Arg Pro | Pro Cys Cys 60 Ala Tyr Arg Tyr Gln 140 | Ala Val 45 Gln Met Leu Ala Ile 125 Gly | His 30 Ser Arg Glu His Ser 110 Asn | 15 Ala Glu Glu Lys Arg 95 Ser Ser | Lys Tyr Gln Leu 80 Tyr Ala His | |
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| ccc gag gcg ggg aca ggt ggt gcc gct gca ggc gac agc cgc gcc gtg Pro Glu Ala Gly Thr Gly Gly Ala Ala Ala Gly Asp Ser Arg Ala Val 115 120 125 | 441 |
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| Glı | u As | n Glr | Met 165 | Gln | Arg | Pro | Va: | l Ty: | | a Pr | o Pr | o Al | a Pr | | l Gln | |
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| tac Tyr | gc Ala 19 | a vai | gga Gly | atg Met | gcg Ala | ccc Pro 200 | gtg Val | g egg Arg | gco Ala | c aad a Asi | c gto 1 Va: 20! | l Gly | y Gly | g cag / Glr | g tac n Tyr | 681 |
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| gly aaa | tac Tyr | gag Glu | gaa Glu | gga Gly 230 | gcg Ala | tac Tyr | ggc | gca Ala | ggt Gly 235 | ' Ser | ago Ser | aac Asr | gga Gly | gga Gly 240 | / Ala | 777 |
| gcc Ala | att | ggc Gly | gac Asp 245 | gag Glu | gag Glu | agc Ser | tcg Ser | tcc Ser 250 | aac Asn | ggc | gtg Val | r ccg | gca Ala 255 | Pro | ggg | 825 |
| gag Glu | ggc | atg Met 260 | gly ggg | gag Glu | cca Pro | gag Glu | cca Pro 265 | gag Glu | cca Pro | gca Ala | gca Ala | gaa Glu 270 | Glu | tcg Ser | cat | 873 |
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| | | 213> | | icum | aes | tivu | m | | | | | | | | | |
| Met | | 100> Asn | | Glv ' | Val | Pro : | Δgn | Glv | Pro | בות | ח ז ח | Dro | 710 | Desc | m) | |
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| 65 | | Val ' | | 7 | 70 | | | | | 75 | | | | | 80 | |
| | | Val <i>i</i> | ٤ . | 35 | | | | | 90 | | | | | 95 | | |
| | | | 100 | | | | | 105 | | | | | 110 | Met | | |
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115
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